

A new species of *Allobracon* Gahan (Braconidae: Hormiinae) from Brazil, and the first record of green Hormiinae

A .M. Pentead-Dias & C. van Achterberg

Pentead-Dias, A.M. & C. van Achterberg. A new species of *Allobracon* Gahan (Braconidae: Hormiinae) from Brazil, and the first record of green Hormiinae.

Zool. Med. Leiden 78 (12), 27.viii.2004: 241-247, figs 1-11. — ISSN 0024-0672.

A.M. Pentead-Dias, Universidade Federal de São Carlos, Departamento de Ecologia e Biologia Evolutiva, Rodovia Washington Luiz, Km 235, CP 676, CEP 13 565-905, São Carlos, SP, Brazil (e-mail: angelica@power.ufscar.br).

C. van Achterberg, Afdeling Entomologie (Hymenoptera), Nationaal Natuurhistorisch Museum, Postbus 9517, 2300 RA Leiden, The Netherlands (e-mail: achterberg@naturalis.nnm.nl).

Key words: *Allobracon*; Hymenoptera; Braconidae; Hormiinae; Brazil; neotropical; new species; key; green pigmentation.

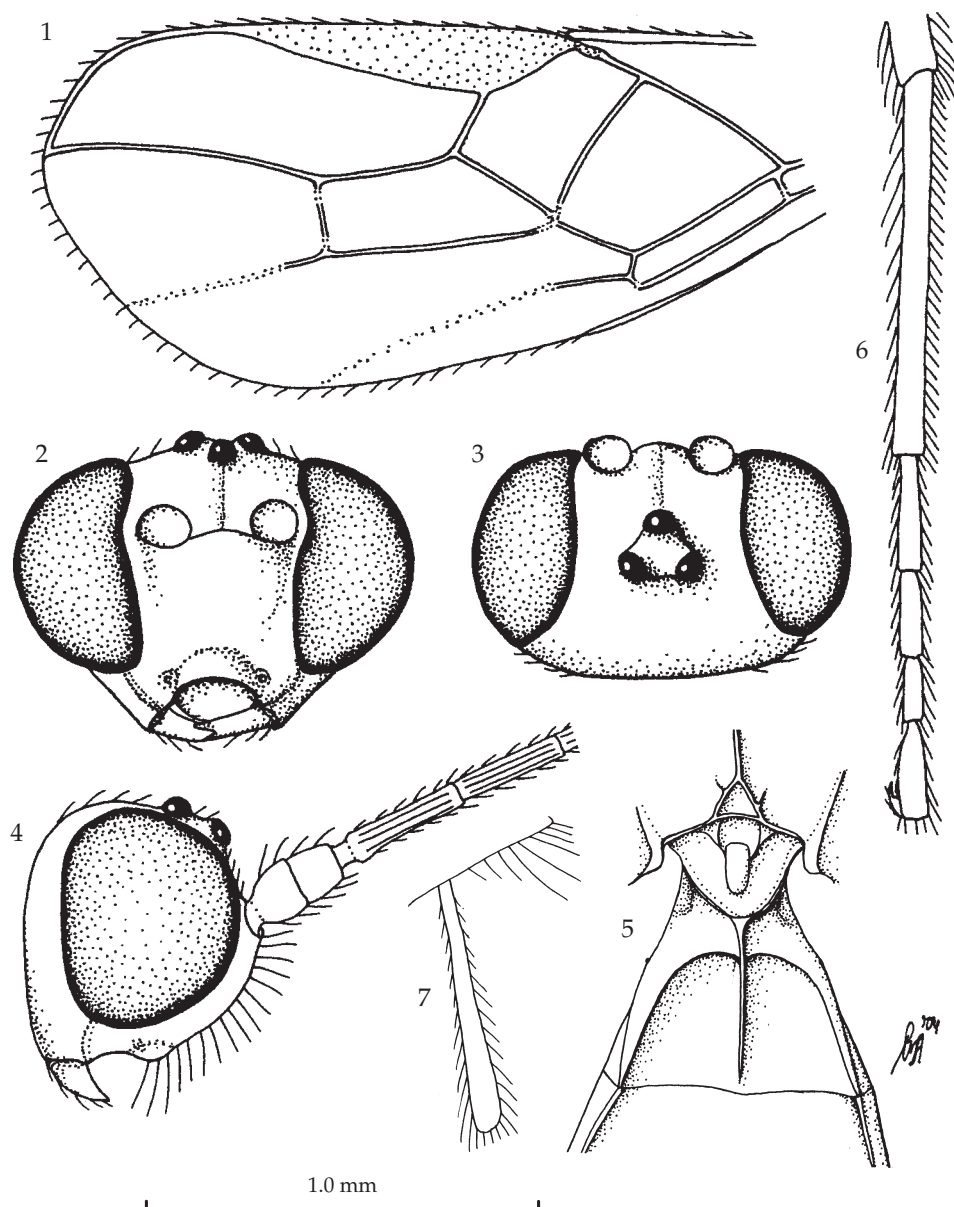
A new species of the genus *Allobracon* Gahan, 1915, from Brazil is described and illustrated. It is the first green species of the genus and of the subfamily known. A key to the species is added.

Introduction

During the study of Brazilian Braconidae the first author found some green specimens of the genus *Allobracon* Gahan, 1915 (Braconidae: Hormiinae). The specimens were collected in the period 1986 to 1991 in São Paulo State, Brazil, at light and by sweeping the vegetation. It is surprising that they are still partly green after many years of preservation. The green pigment seems to be at the inner side of the cuticle and originally probably in the body fluid. The scapus (fig. 8), the palpi, the tegulae, the legs (coxae, femora, tibiae), the propodeum, the apex of the metasoma (figs 7-9) and the costal area of the fore wing (fig. 8) are more or less green in the preserved specimens. Quicke (1993) lists the green specimens of several subfamilies of Braconidae known to him: a *Bracon* spec. (Braconinae), a *Spathius* spec. (Doryctinae), a *Meteorus* spec. (Euphorinae), a *Nyereria* spec. (Microgastrinae) and an *Aleiodes* spec. (Rogadinae). The *Aleiodes* specimens showed the green colour nearly all over the body and the other listed species have the green colour more restricted to regions where the cuticle is thin, especially of the legs.

The Hormiinae are parasitoids of larvae of Lepidoptera, Coleoptera and less commonly of Hymenoptera and Diptera. They are idiobiont ectoparasitoids, frequently gregarious and they develop rapidly on the final instar larva. The vast majority of species are parasitoids of hosts that are concealed in some way (e.g. leaf-miners, leaf-rollers, leaf-tiers, stem borers, seed borers, gall-formers or borers in fungi; Whitfield & Wharton, 1997). The genus *Allobracon* is restricted to the New World and has been reared from leaf-mining Lepidoptera and Coleoptera (Buprestidae and Chrysomelidae) (Wharton, 1993).

For the recognition of the subfamily Hormiinae, see van Achterberg (1990, 1993, 1997), for the genus *Allobracon*, see van Achterberg (1995) and Whitfield & Wharton (1997), and for the terminology used in this paper, see van Achterberg (1988). The



Figs 1-7, *Allobracon chloripes* spec. nov., ♂, paratype, but 5 and 7 of ♀, holotype. 1, fore wing (except its basis); 2, head, anterior aspect; 3, head, dorsal aspect; 4, head and base of antenna, lateral aspect; 5, first metasomal tergite, dorsal aspect; 6, hind tarsus, dorsal aspect; 7, ovipositor sheath, lateral aspect. 1: 1.0 × scale-line; 2-4, 6: 1.5 ×; 5, 7: 1.6 ×.

abbreviation DCBU stands for Departamento de Ecologia e Biologia Evolutiva da Universidade Federal de São Carlos, SP, Brazil; and RMNH for the Nationaal Natuurhistorisch Museum (formerly Rijksmuseum van Natuurlijke Historie), Leiden, The Netherlands.

Key to species of the genus *Allobracon* Gahan, 1915

1. Anterior tentorial pits far below lower level of eyes; notauli complete and crenulate; malar suture absent; precoxal sulcus distinctly impressed anteriorly; [antenna with 26-28 segments; length of malar space about half length of eye in anterior view; vein 3-SR of fore wing about 3.5 times as long as vein r]; U.S.A. (Texas) *A. texensis* Wharton, 1963
- Anterior tentorial pits near or above lower level of eyes; notauli absent dorsally or largely so and area smooth or granulate; malar suture present; precoxal sulcus absent 2
2. Mesoscutum with a distinct medio-longitudinal groove **and** length of eye about 3 times temple in dorsal view; [vein M+CU of hind wing about as long as vein 1-M; antenna of ♀ with about 18 segments]; Brazil *A. perpolitus* (Clark, 1965)
- Mesoscutum without a medio-longitudinal groove; if with a shallow median groove then length of eye about 6 times temple in dorsal view 3
3. Temples almost absent, eye about 9 times as long as temple in dorsal view; vein M+CU of hind wing about as long as vein 1-M and antenna of ♀ with 19-21 segments; [mesoscutum evenly coriaceous; first tergite smooth basally and similarly yellowish as membranous part]; Brazil *A. pinguipes* (Clark, 1965)
- Temples distinct, eye 4-7 times as long as temple in dorsal view; vein M+CU of hind wing 0.5-0.8 times as long as vein 1-M, if about equal then antenna of ♀ with 25-26 segments 4
4. Antenna of ♀ with 19-22 segments; vein 3-SR of fore wing 1.1-1.5 times as long as vein r; pronotal side with some striae but sometimes weakly developed 5
- Antenna of ♀ with 24-32 segments (unknown of *A. nigromaculatus*); vein 3-SR of fore wing 2.3-3.0 times as long as vein r; pronotal side without striae, but distinctly striate in male of *A. chloripes* 8
5. First metasomal tergite without median carina basally; antenna of ♀ with 19-20 (♂: 21) segments; middle mesoscutal lobe smooth or largely so; vein 3-SR of fore wing about 1.1 times as long as vein r; [occiput, scutellum, propodeum and first tergite more or less dark brown]; Mexico *A. gahani* Wharton, 1993
- First tergite with (bifurcate) median carina basally; antenna of ♀ with 20-22 segments; middle mesoscutal lobe granulate-coriaceous; vein 3-SR of fore wing 1.3-1.5 times as long as vein r 6
6. Lateral lobes of mesoscutum near tegulae smooth; second segment of fore tarsus of ♀ about 4 times as long as wide and of hind tarsus about 5 times; OOL 2.0-2.5 times diameter of posterior ocellus; length of eye about 7 times temple in dorsal view and head more transverse; mesoscutum more or less dark brown and propodeum yellowish; propodeum usually only with a median carina; Peru *A. primus* (Muesebeck, 1958)
- Lateral lobes of mesoscutum near tegulae granulate-coriaceous; second segment of

- fore tarsus of ♀ about 3 times as long as wide and of hind tarsus about 3.5 times; OOL 3-4 times diameter of posterior ocellus; length of eye about 5 times temple in dorsal view and head less transverse; mesoscutum more or less yellowish and propodeum more or less dark brown; propodeum usually with some oblique rugae besides median carina 7
7. First metasomal tergite with evenly semicircular membranous emargination, without a central protuberance and median carina hardly developed; ovipositor sheath about twice as long as first tergite; [eye somewhat emarginate; mesoscutum superficially rugulose]; St. Vincent *A. pilosipes* (Ashmead, 1894)
- First tergite with bilobed membranous emargination, with a central protuberance and median carina distinctly developed; ovipositor sheath about 0.7 times as long as first tergite; Brazil *A. plaumanni* (Clark, 1965)
8. Antenna of ♀ with 24-28 segments; propodeum granulate-coriaceous, but largely smooth in *A. chloripes*; median carina of propodeum yellowish; first metasomal tergite more or less granulate basally; hind tibia with long and outstanding setae 9
- Antenna of ♀ with about 32 segments (unknown of *A. nigromaculatus*); propodeum smooth; median carina of propodeum dark brown; first tergite smooth or rugulose basally; setae of hind tibia with medium-sized and adpressed 11
9. Depressed membranous part of first metasomal tergite semicircular, with median carina but without median protuberance (figs 5, 10); antenna, palpi, legs, tegulae, more or less mesoscutum, propodeum, apex of metasoma and vein C+SC+R of fore wing green (live specimens; more or less reduced in preserved specimens); propodeum largely smooth or nearly so; Brazil *A. chloripes* spec. nov.
Note.— The shape of the membranous area of the first tergite is similar to that of *A. pilosipes* but this species has the median carina of the first tergite hardly developed.
- Depressed membranous part of first tergite bilobed, with distinct median protuberance (cf. fig. 217 in van Achterberg, 1995); antenna (but flagellum may be dark brown), palpi, legs, tegulae, propodeum, apex of metasoma and vein C+SC+R of fore wing brownish-yellow; antero-laterally propodeum more or less granulate 10
10. Depressions of first metasomal tergite distinctly widened posteriorly and with a median protuberance reaching halfway depression; median carina of first tergite distinct and complete; ovipositor sheath 1.4-1.5 times as long as first tergite; Panama *A. leguminis* Wharton, 1993
- Depressions of first tergite parallel-sided posteriorly and with a median protuberance close to posterior margin of depression; median carina of first tergite weakly developed and absent anteriorly; ovipositor sheath about 0.5 times as long as first tergite *A. scorteus* (Clark, 1965)
11. Metasoma behind first metasomal tergite uniformly yellowish-brown; second hind tarsal segment of ♀ about 3.5 times as long as wide; temple directly narrowed behind eye; ovipositor sheath about 0.8 times as long as first tergite; Brazil
..... *A. festivus* (Clark, 1965)
- Metasoma behind first tergite with lateral row of dark brown sclerotized sclerites; second hind tarsal segment of ♀ 6-7 times as long as wide; temple roundly narrowed behind eye; ovipositor sheath somewhat longer than first tergite; Brazil
..... *A. nigromaculatus* (Clark, 1965)

Allobracon chloripes spec. nov.
(figs 1-10)

Material.— Holotype, ♂ (DCBU), “[Brazil,] SP, Rio Mogi Guaçu, 28.xi.1989, 102, L.A. Joaquim”. Paratype: 1 ♂ (RMNH), same label data.

Holotype, ♂, length of body 2.9 mm, of fore wing 2.7 mm.

Head.— Antenna with 26 segments and 1.3 times as long as fore wing (fig. 7), third segment 1.3 times as long as fourth segment, third, fourth and penultimate segments 5.0, 3.8, and 4.5 times their width, respectively; apex of antenna with spine; length of maxillary palp 1.2 times height of head; anterior tentorial pits near lower level of eyes (fig. 2); inner side of eyes emarginate (fig. 2); face and clypeus smooth and weakly convex; frons slightly convex, with a weak median groove and only laterally setose; length of eye in dorsal view 6.4 times temple (fig. 3); temples directly narrowed posteriorly; occipital carina completely absent; vertex smooth and flattened (fig. 4); occipital flange narrow; malar suture present; length of malar space equal to basal width of mandible and 0.2 times height of head (fig. 4).

Mesosoma.— Length of mesosoma 1.7 times its height; antescutal slit large, situated below mesoscutum because of shortened pronotum; side of pronotum largely and distinctly sublongitudinally striate but anteriorly smooth; precoxal sulcus completely absent; mesopleuron smooth; metapleuron smooth except for a subvertical carina; notauli absent; mesoscutum granulate (but laterally less developed) and with a long shallow median groove but anteriorly absent; scutellar sulcus shallow and smooth, except for an indistinct median carina; scutellum smooth; propodeum superficially coriaceous (but anteriorly largely smooth) and with complete median carina.

Wings.— Fore wing: parastigma obsolescent; $r:3\text{-SR}:SR1 = 9:21:43$; $2\text{-SR}:3\text{-SR}:r\text{-m} = 18:21:11$; r slightly wider than 2-SR (fig. 1); pterostigma elliptical; $cu\text{-a}$ short and just postfurcal; $m\text{-cu}$ subinterstitial, slightly postfurcal (fig. 1). Hind wing: $M+CU:1\text{-M} = 10:13$.

Legs.— Length of femur, tibia and basitarsus of hind leg 6.6, 12.4 and 11.5 times their width, respectively; length of second segment of fore tarsus 5 times its width and of hind tarsus 4.7 times; hind tibia with long and outstanding setae; claws simple.

Metasoma.— Length of first tergite 1.7 times its apical width, sclerotized part with distinct dorsal carinae and with a median carina (fig. 5), its surface superficially coriaceous, posterior part of tergite semi-elliptically depressed, widened apically and without median protuberance (fig. 6); sclerotized lateral parts of second and following tergites narrow, indistinct.

Colour.— Pale yellowish; stemmaticum, vein $M+CU1$ of fore wing apically, 1-M posteriorly, and 1-CU1 largely and flagellum of antenna dark brown; pedicellus, telotarsi and second–fourth segments of hind tarsus dark green; remaining veins of fore wing largely brownish, but vein $C+SC+R$ of fore wing partly green; legs, base of wings, mesopleuron dorsally, scapus and genitalia green; sclerotized part of first tergite brownish-yellow; wing membrane hyaline.

Variation.— Length of fore wing 2.7–3.1 mm, and of body 2.9–3.0 mm; antenna of ♂ with 26(1) or 27(1) segments; vein 3-SR of fore wing 2.4–3.0 times vein r .

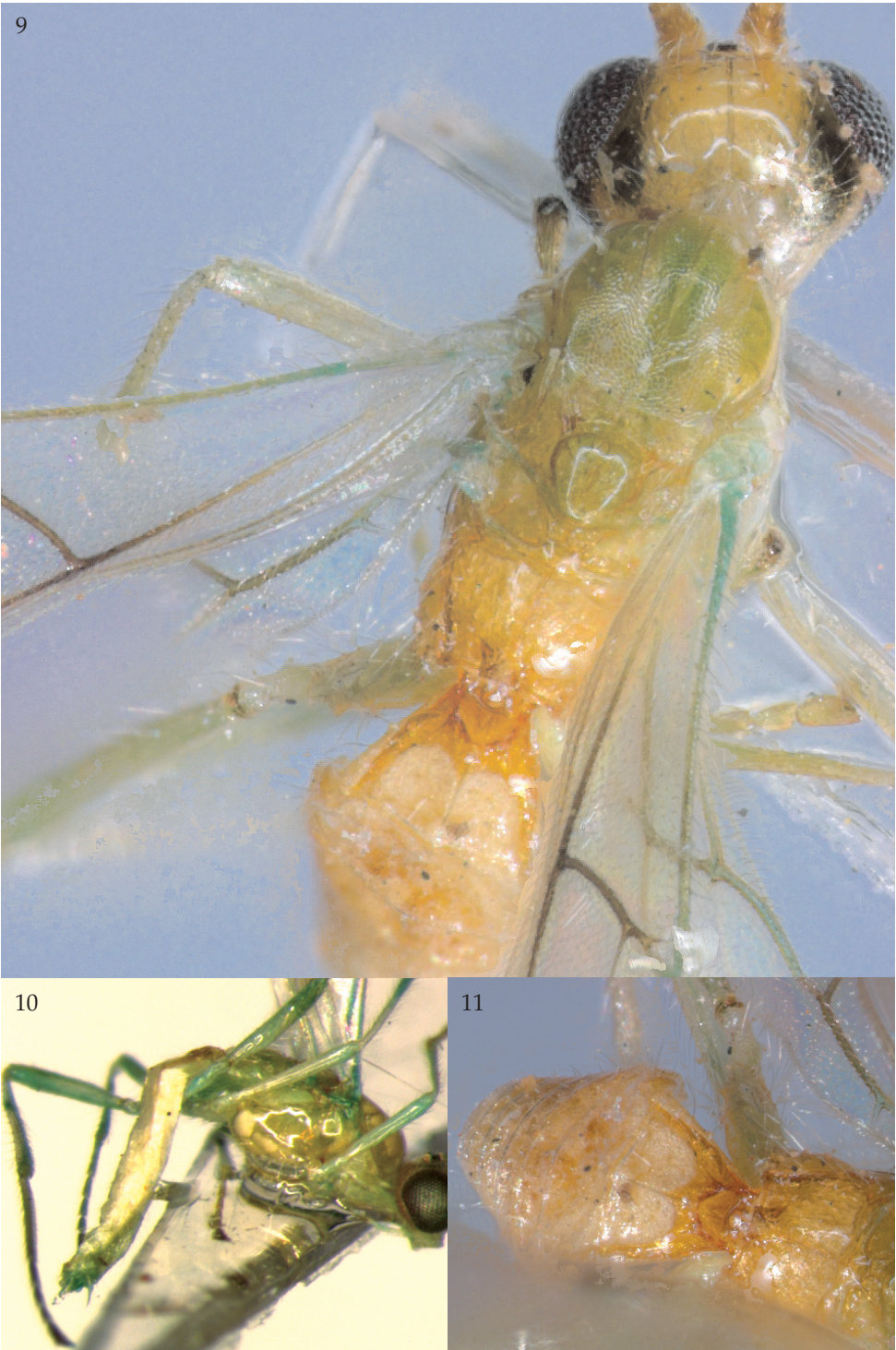


Fig. 8, *Allobracon chloripes* spec. nov., ♀, holotype, habitus, latero-dorsal aspect.

Fig. 9, *Allobracon chloripes* spec. nov., ♀, holotype, habitus, lateral aspect.

Fig. 10, *Allobracon chloripes* spec. nov., ♂, paratype, habitus, lateral aspect.

Fig. 11, *Allobracon chloripes* spec. nov., ♀, holotype, first metasomal tergite, dorsal aspect.



Acknowledgements

We are grateful to the Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brasil (CNPq) for the financial support of the first author.

References

- Achterberg, C. van, 1988. Revision of the subfamily Blacinae Foerster (Hymenoptera, Braconidae).— Zool. Verh. Leiden 249: 1-324, figs 1-1250.
- Achterberg, C. van, 1990. Illustrated key to the subfamilies of the Holarctic Braconidae (Hymenoptera: Ichneumonoidea).— Zool. Med. Leiden 64: 1-20, figs 1-26.
- Achterberg, C. van, 1993. Illustrated key to the subfamilies of the Braconidae (Hymenoptera: Ichneumonoidea).— Zool. Verh. Leiden 283: 1-189, figs 1-66, photos 1-140, plates 1-102.
- Achterberg, C. van, 1995. Generic revision of the subfamily Betylobraconinae (Hymenoptera: Braconidae) and other groups with modified fore tarsus.— Zool. Verh. Leiden 298: 1-242, figs 1-857.
- Achterberg, C. van, 1997. Braconidae. An illustrated key to all subfamilies.— ETI World Biodiversity Database CR-ROM Series.
- Quicke, D.L.J., 1993. A note on the occurrence of green pigmentation in the Braconidae (Hym.).— Entomologist's Monthly Magazine 129:123-124.
- Wharton, R.A., 1993. Review of the Hormiini (Hymenoptera: Braconidae) with a description of new taxa.— J. Nat. Hist. 27: 107-171.
- Whitfield, J.B. & R.A. Wharton, 1997. Subfamily Hormiinae, p. 284-301, figs 1-41. In: Wharton, R.A., P.M. Marsh & M.J. Sharkey (eds). Manual of the New World genera of the family Braconidae (Hymenoptera).— Spec. Publs Int. Soc. Hym. 1: 1-439, figs.

Received: 23.viii.2003

Accepted: 6.vii.2004

Edited: R.W.R.J. Dekker